



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,390	01/13/2004	Seung-Do Han	0630-1928P	9970
2292	7590	08/27/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			NGUYEN, HANH N	
PO BOX 747			ART UNIT	
FALLS CHURCH, VA 22040-0747			PAPER NUMBER	

2834

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,390

Applicant(s)

HAN ET AL.

Examiner

Nguyen N Hanh

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "a salient 131" and "an air space portion 133" as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "cage rotor

Art Unit: 2834

provided with magnetic barriers having the same pole numbers as the magnet unit" must be shown or the feature(s) canceled from the claim(s). It is noted that "the magnetic barrier 203" as shown in Fig. 5 is a protruded portion from the rotor core, neither portion 203 or the magnet unit 120 show any pole. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2834

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 7, the limitation "a cage rotor provided with magnetic barriers having the same pole numbers as the magnet unit" is not understood because it is not clear why the protruded portion (203 in Fig. 5) protruded from the rotor core is defined as "a magnetic barrier" and the drawings do not show the pole or the pole numbers for the magnetic barrier (203) and the magnet unit (120).

Regarding claim 7, the drawings do not show any pole of the magnet unit (120) at an outer circumferential surface and an inner side surface thereof.

In lights of the specification, the Examiner interprets the magnet barrier as a gap between the protruded portion (203).

Claims 2-6 and 8-9 are dependent claims of claims 1 and 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leibovich in view of Henneberger et al. (DE3609351) and further in view of Koharagi et al.

Regarding claim 1 and 7, Leibovich discloses a line start reluctance synchronous motor comprising: a single phase stator arranged at an inner circumferential surface of a motor body and on which a main coil and a sub coil are wound (claim 23); and a cage rotor provided with a rotation shaft at a center portion and provided with a cage bar (50) at a peripheral portion thereof. Leibovich fails to show a magnet unit free-rotatably arranged along an inner circumferential surface of the stator in order to maintain an air gap with the stator and the rotor is provided with magnetic barriers having the same pole numbers as the magnet unit (at an outer circumferential surface and an inner side surface thereof as in claim 7).

However, Henneberger et al. disclose a magnet unit free-rotatably arranged along an inner circumferential surface of the stator in order to maintain an air gap with the stator (23 in Figs. 1, 5 and abstract) for the purpose of increasing motor torque.

Moreover, Koharagi et al. disclose the rotor is provided with magnetic barriers (recess 13 in Fig. 2) for the purpose of increasing motor torque.

Since Leibovich, Henneberger et al. and Koharagi et al. are in the same field of endeavor, the purpose disclosed by Henneberger et al. and Koharagi et al. would have been recognized in the pertinent art of Leibovich.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Leibovich by a magnet unit free-rotatably arranged along an inner circumferential surface of the stator in order to maintain an air gap with the stator and the rotor is provided with magnetic barriers having the same pole numbers as the magnet unit (at an outer circumferential surface and an inner side

Art Unit: 2834

surface thereof as in claim 7) as taught by Henneberger et al. and Koharagi et al. for the purpose of increasing motor torque.

Regarding claim 2, Koharagi et al. also show the line start reluctance synchronous motor wherein the magnetic barriers are formed with a certain interval at an outer side surface of the cage rotor (Fig. 2).

Regarding claim 3, Koharagi et al. also show the line start reluctance synchronous motor wherein a salient is formed between the magnetic barriers (Fig. 2).

Regarding claim 4, Koharagi et al. also show the line start reluctance synchronous motor wherein the magnetic barriers are formed with a certain interval at an inner side surface of the cage rotor (Fig. 2).

Regarding claims 5 and 8, Koharagi et al. also show the line start reluctance synchronous motor wherein the magnetic barriers are formed as a circular arc shape.

Regarding claims 6 and 9, Koharagi et al. also show the line start reluctance synchronous motor wherein the magnetic barriers become larger towards a circumferential direction of the rotor.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberger, can be reached on (571) 272-2044. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

Application/Control Number: 10/755,390

Page 7

Art Unit: 2834

872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

HNN

August 23, 2004

A handwritten signature in cursive script, appearing to read "Dangle".

DANGLE
PRIMARY EXAMINER